

Classical Swine Fever and Look-a-like Diseases of Pigs

Pat Blanchard

California Animal Health and Food Safety

Laboratory, Tulare branch

pcblanchard@ucdavis.edu

Classical Swine Fever

- CSF is a viral disease of pigs
- From exposure to start of clinical signs = 3-15 days
- Clinical signs vary with age, strain of virus, other
- 100% death loss in young pigs with strains that are called “highly virulent”
- Since 1960’s moderate and low virulent strains that cause milder illness are more common in Mexico, Central America and Europe

CSF- severe forms

Highly virulent strains (rare now) can cause:

- High fever (105-108F), huddle, depressed, don't eat, rapid weight loss and die 5-15 days later
- Conjunctivitis (runny eyes)
- Red to purple skin or skin hemorrhages
- In some, short period of constipation then diarrhea
- Nervous signs: sway, weakness, convulsions
- Difficult breathing, coughing, some vomit
- Very unwilling to get up when disturbed
- Abortion, embryo deaths, stillbirth, weak births

Less severe forms of CSF are more common

- **Milder illness than “highly virulent”**
- **Fever (105-106F) which persists 2-4 weeks with lack of energy, huddle, shiver**
- **Get up when disturbed but appear weak**
- **Still eat and drink but less than normal**
- **Poor weight gain or weight loss**
- **Conjunctivitis**
- **Some mild constipation or chronic diarrhea**
- **Red skin on abdomen, ears, legs**
- **Reproductive failures**

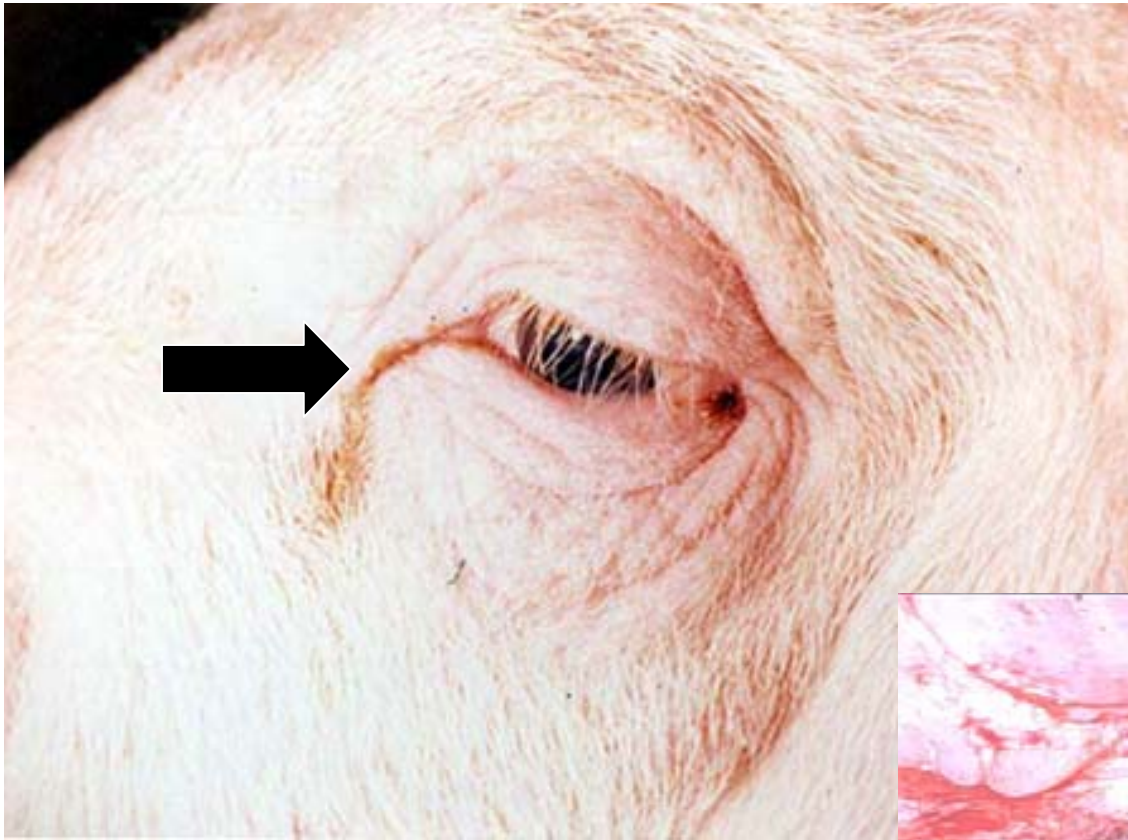
CSF- Reproductive signs

Mild and some moderate strains cause:

- **Mild or no illness in sows**
- **Some have fever (104-105F) for 1-2 weeks**
- **Reproductive problems might include:**
 - **mummies, stillbirths, small litters**
 - **18-23 day return to heat**
 - **congenital defects in mouth, brain, eyes, lungs**
 - **congenital tremors**
 - **piglets born to infected sows may be infected for life**

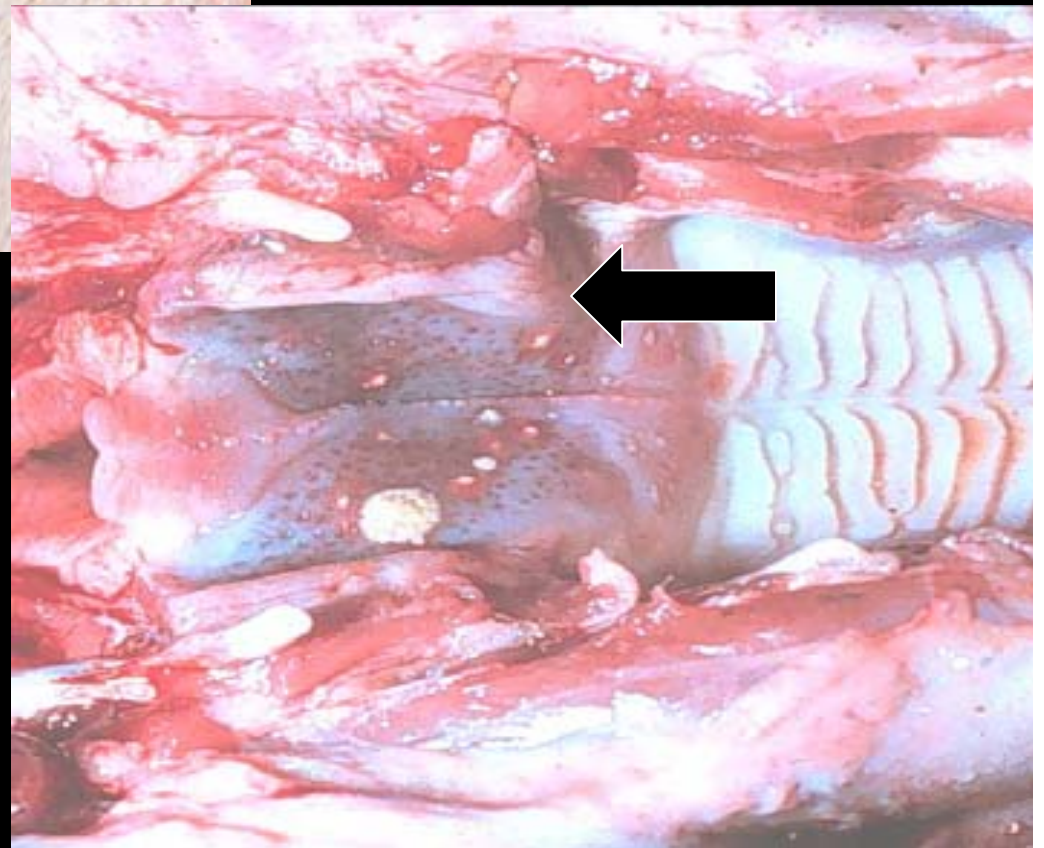


Classical Swine Fever- Depressed pigs, unwilling to get up, fever, one with hemorrhages on shoulder



(above) swine tonsil is entire soft palate

**CSF- conjunctivitis
(eye discharge) and
tonsils with pus and
necrosis (white
spots), hemorrhage**

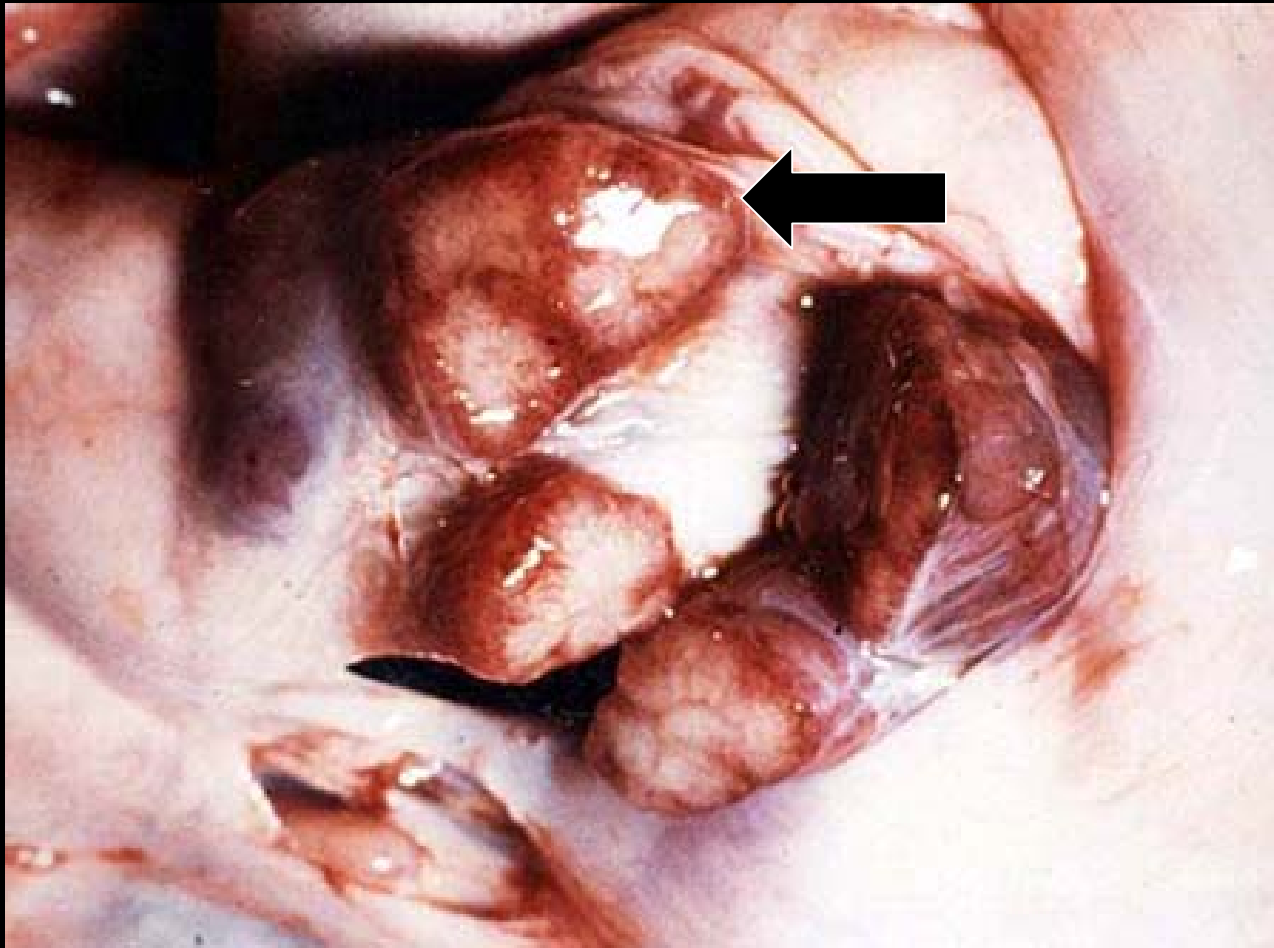




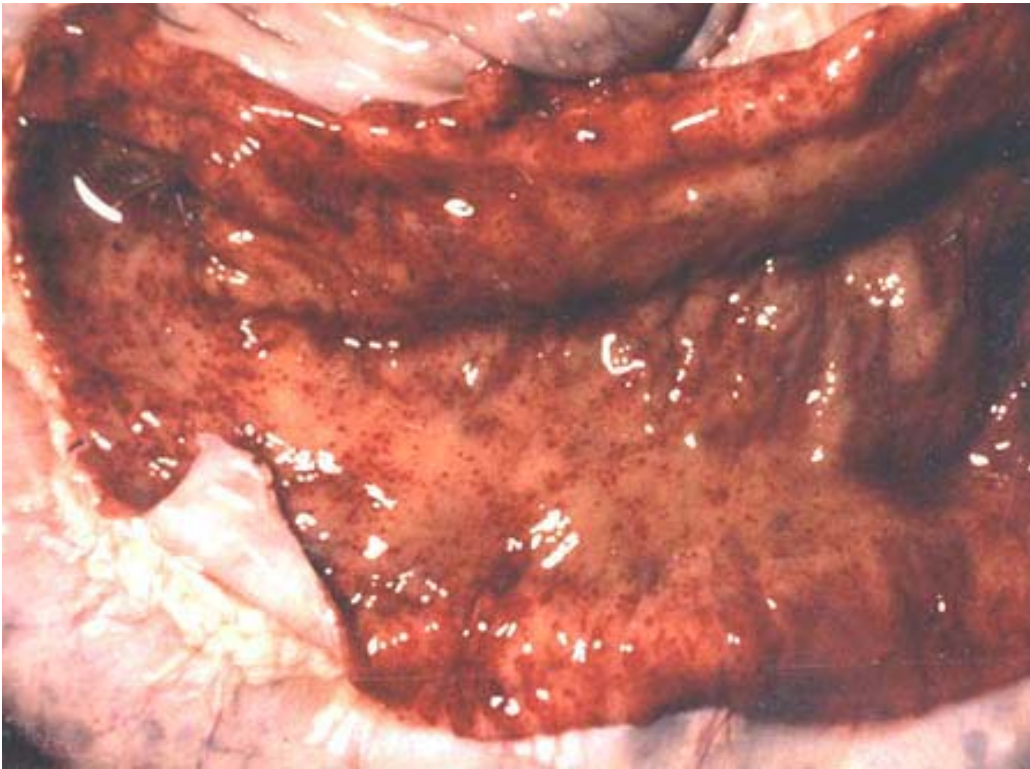
CSF- Kidneys (left top and left bottom) with pinpoint hemorrhages.

Spleen infarcts (dark black/red) below





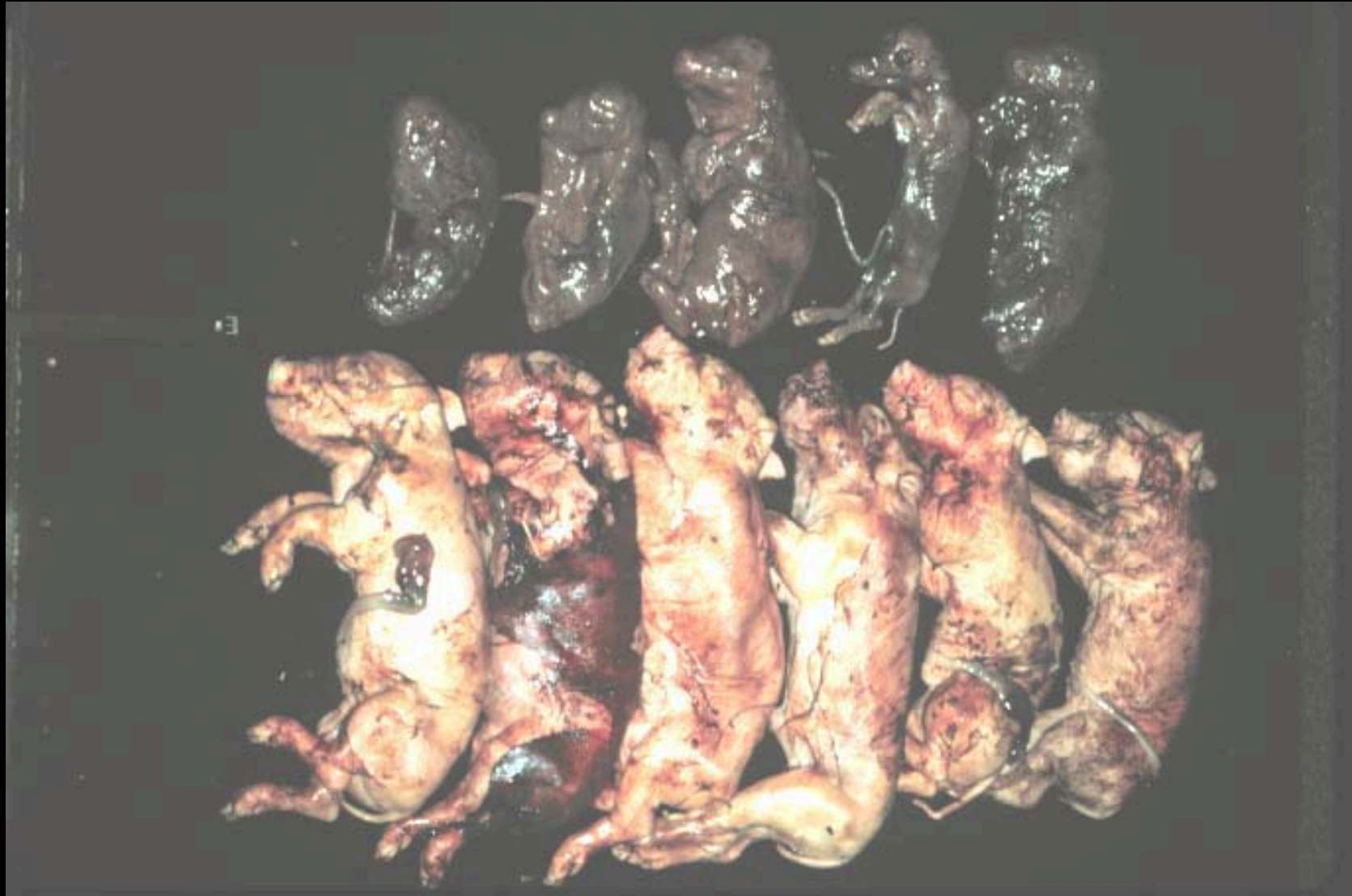
**CSF- Lymph nodes enlarged and hemorrhagic (red) above.
Same lesion can occur with African Swine Fever**



**CSF- colon infection
and hemorrhage (left)**

**Salmonella choleraesuis
intestine button ulcers
(right)**





Abortion with mummies (many diseases can cause)

CSF surveillance program- When to submit?

Submit affected pigs if you see:

- Hemorrhages in multiple sites or organs
- High fever that persists (huddling pigs)
- High death loss or a high number of sick pigs
- Red/purple skin (underside of pig, ears, legs)
- Nervous signs like incoordination, weak, unable to stand, dog sitting, convulsions, swaying
- Trembling/shaking neonates (congenital tremors)
- Ongoing undiagnosed disease problem

Pigs meeting any of above criteria will receive a full necropsy work up free if submitted for CSF surveillance to CAHFS also.

Submit sera from affected sows if you have:

- **High rate of returns to heat, abortions, stillbirths, mummies, congenital defects**
- **Trembling neonates (congenital tremors)**

Abortion serology panel is free on sera from sows with reproductive problems if submitted to CAHFS under CSF program

Where to submit?

- Serology can be submitted to CAHFS labs in Davis, Fresno, Tulare and San Bernardino
- Pigs or fresh tissues must include tonsil from pigs can be submitted only to Davis, Tulare or San Bernardino labs
- A veterinarian (or state district veterinarian) should be listed on form but both the owner and vet will receive copies of the report.
- Indicate the samples are part of CSF surveillance program (a one year USDA funded program)

CSF- High Risk Groups

CSF is spread between pigs by contact and to pigs from uncooked pig products or secretions (feces, saliva, etc.) on vehicles, hands, shoes and clothes.

Therefore the following are high risk groups:

- Wild and backyard swine (including pot-belly pigs) from possible exposure to uncooked pork products**
- Pigs on properties where there is contact with visitors who have come from CSF infected areas**
- Farms with workers that have relatives in or travel to CSF infected areas**
- Pigs and pig products from known CSF areas (Mexico, Dominican Republic, and other countries)**

Prevention

- Adhere to import policy on pigs & pig products
- Do not feed uncooked table scraps or garbage to any pigs
- Educate workers and producers on risk from pork products originating from CSF areas
- Quarantine new pigs and watch for illness
- Know the source of AI semen (CSF was spread by AI semen in infected countries)
- Ensure visitors from infected areas wear clean coveralls, boots, etc. when near your pigs

CSF – Look-a-like diseases in US

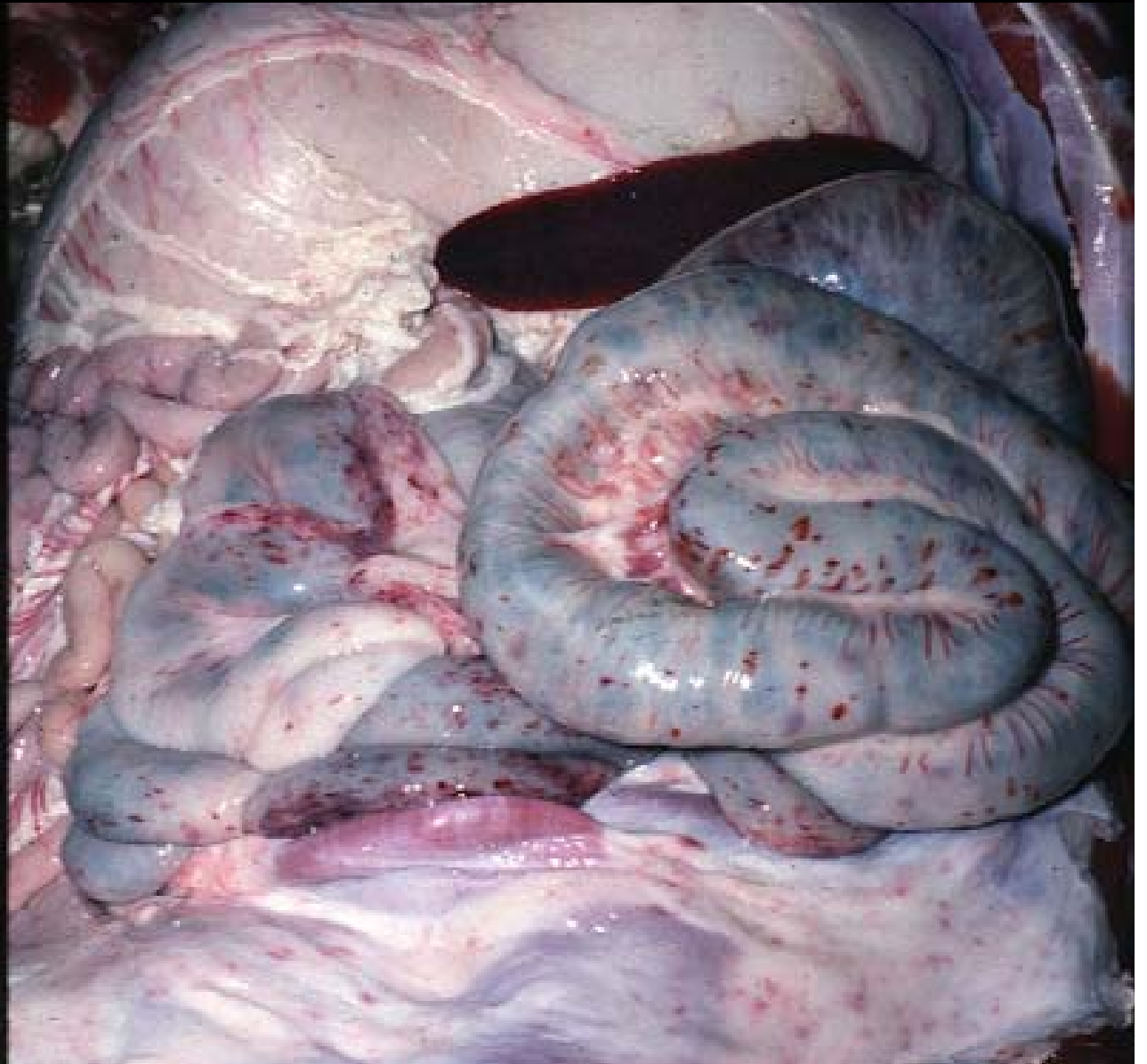
High fever, hemorrhage, red skin and/or sudden death in multiple pigs:

- **Septicemia (blood infections) like:**
 - Salmonellosis (blood illness or intestinal)
 - Erysipelas (skin form, blood illness)
 - Other bacteria

Red skin:

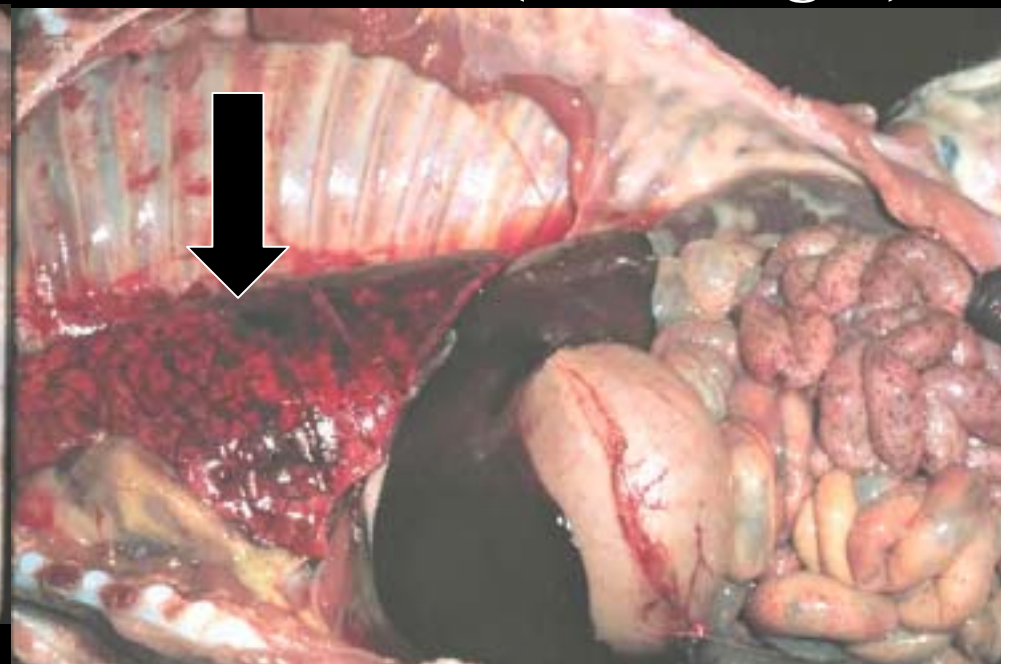
- *Actinobacillus pleuropneumoniae* pneumonia
- Heart valve infections
- Polyserositis (*Haemophilus*, *Streptococcus*)
- *Pasteurellosis* pneumonia

Pinpoint hemorrhages (red spots) in intestine wall can occur with many blood infections (septicemia) as well as CSF

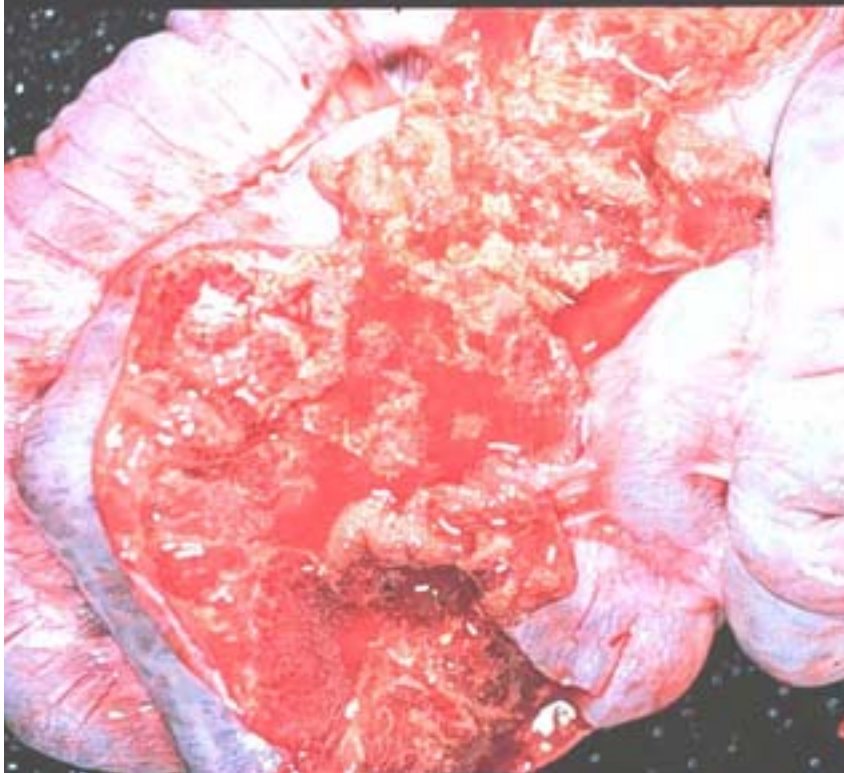
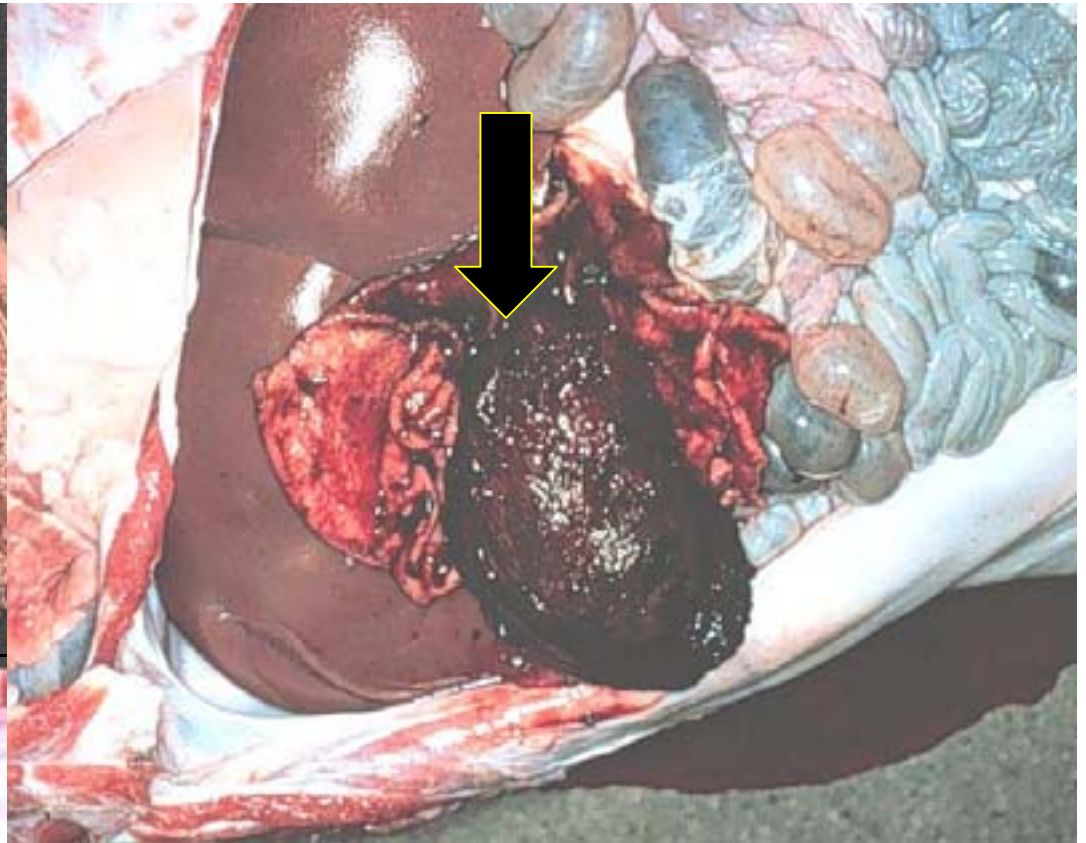
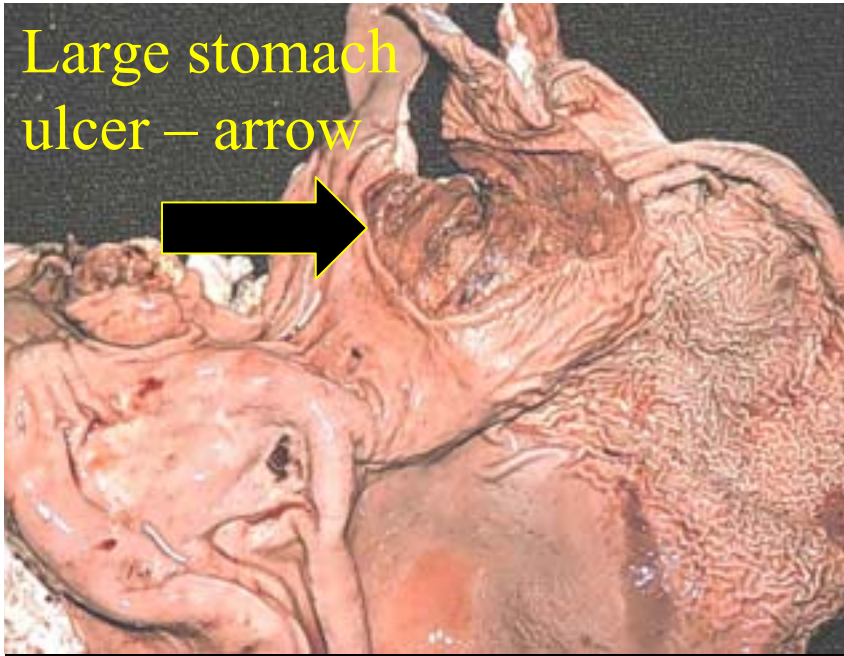




Actinobacillus suis
septicemia: pinpoint
hemorrhage on
mouth and chin (left)
intestine (below left
and right) and larger
lung hemorrhages –
arrow (below right)



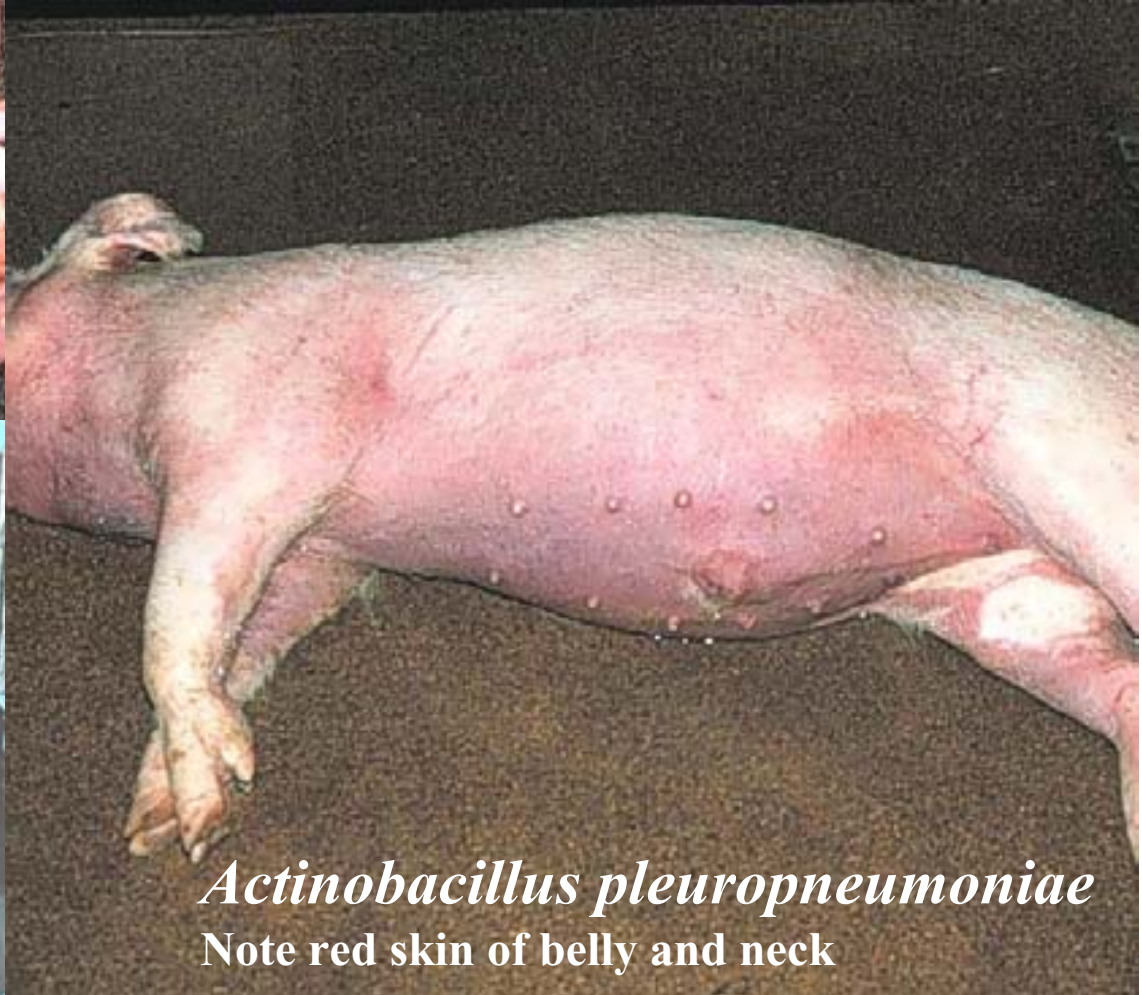
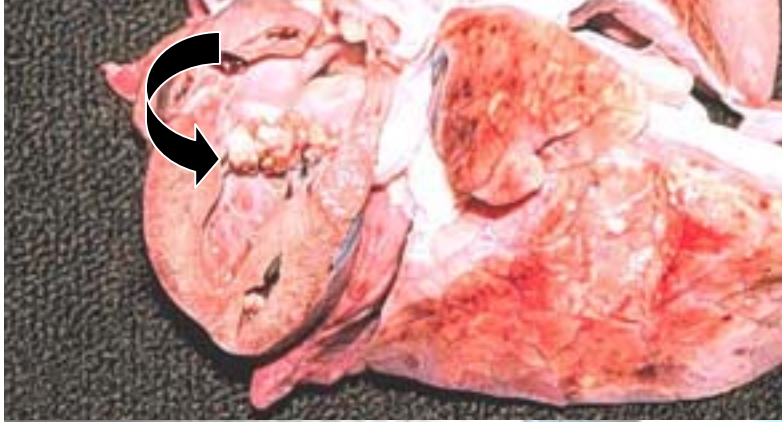
Large stomach
ulcer – arrow



Bleeding conditions that may look like CSF or ASF: gastric ulcers (upper left) leading to blood clot in stomach (above). Swine Dysentery bloody colon contents (left)

Examples of other diseases that cause red skin and ears in pigs in California

Vegetative endocarditis
Infected heart valve-
arrow



Actinobacillus pleuropneumoniae
Note red skin of belly and neck



Erysipelas -multiple sudden deaths (left)

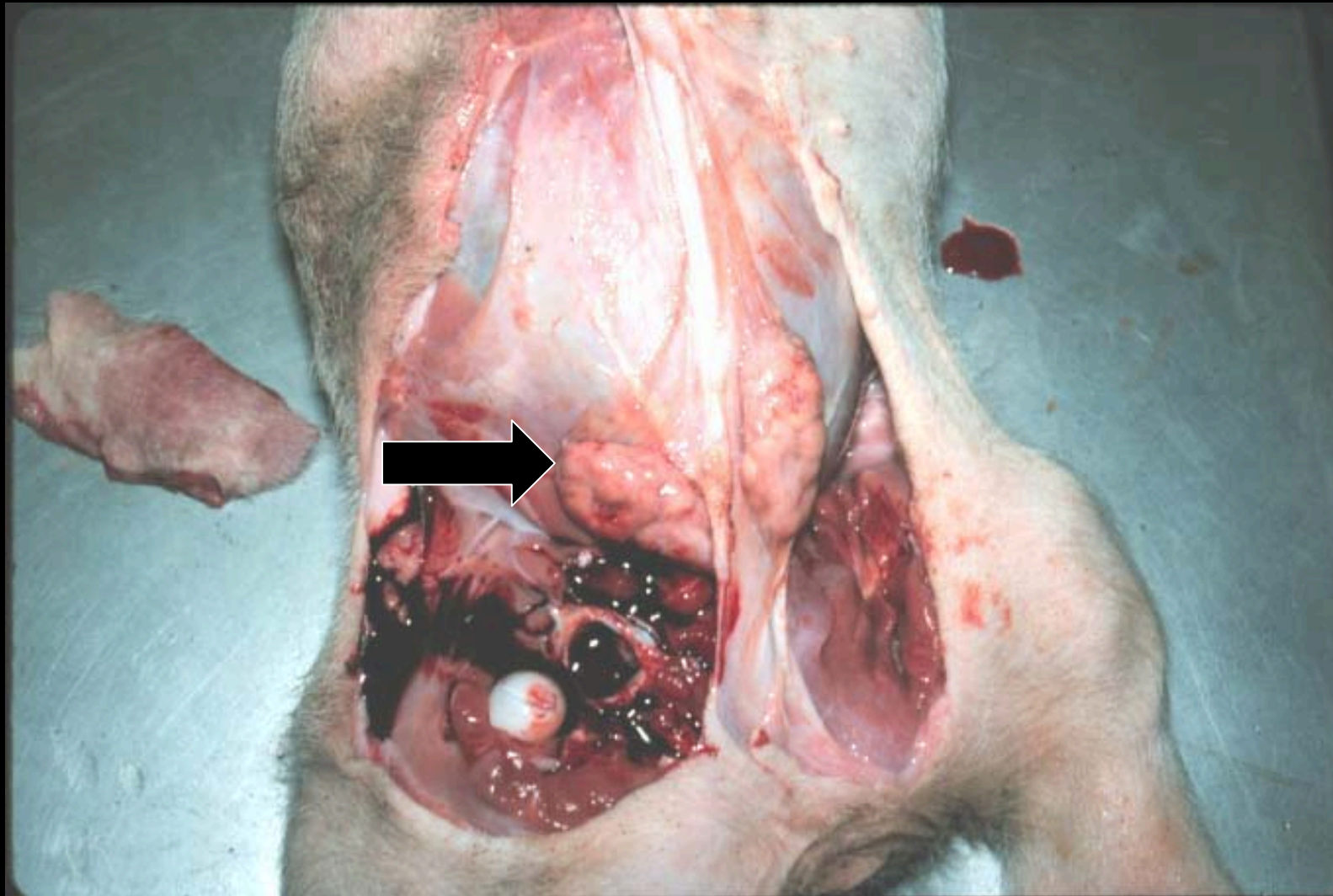
CSF look-a-like disease in US

(cont.)

- **Reproductive problems:**
 - PRRS, Parvovirus, Leptospira, rarely bacterial, other
- **Causes of nervous signs:**
 - Viral brain infections like Pseudorabies
 - Bacterial meningitis like *Streptococcus suis*, *Haemophilus*
 - Brain abscesses
 - Congenital tremors in newborn piglets
 - Salt poisoning (water deprivation)
 - Other toxins (insecticides, pesticides, etc)
- **Causes of large lymph nodes and poor doers:**
 - PRRS
 - Postweaning Multisystemic Wasting Sndrome (circovirus)
 - Other chronic diseases

Herd: 100% stillborn or neonatal death by 2 days old. Litters with congenital defects of brain (right), mouth (below) with cleft palate and harelip also undersize lungs and diaphragm hernia





PRRS and *Haemophilus parasuis* cause large lymph nodes but not hemorrhage (inguinal nodes- arrow)

CAHFS- Davis
West Health Science Dr.
UC Davis, Davis, CA
530-752-8700
(pigs and serology)

CAHFS-Tulare
18830 Road 112
Tulare, CA
559-688-7543
(pigs and serology)

CAHFS- Fresno
2789 South Orange Ave
Fresno, CA
559-498-7740
(serology only)

CAHFS-San Bernardino
105 West Central Ave
San Bernardino, CA
909-383-4287
(pigs and serology)